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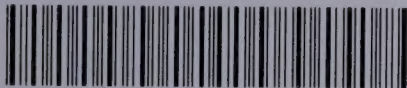
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PIGEON LAKE SURVEY

REPORT

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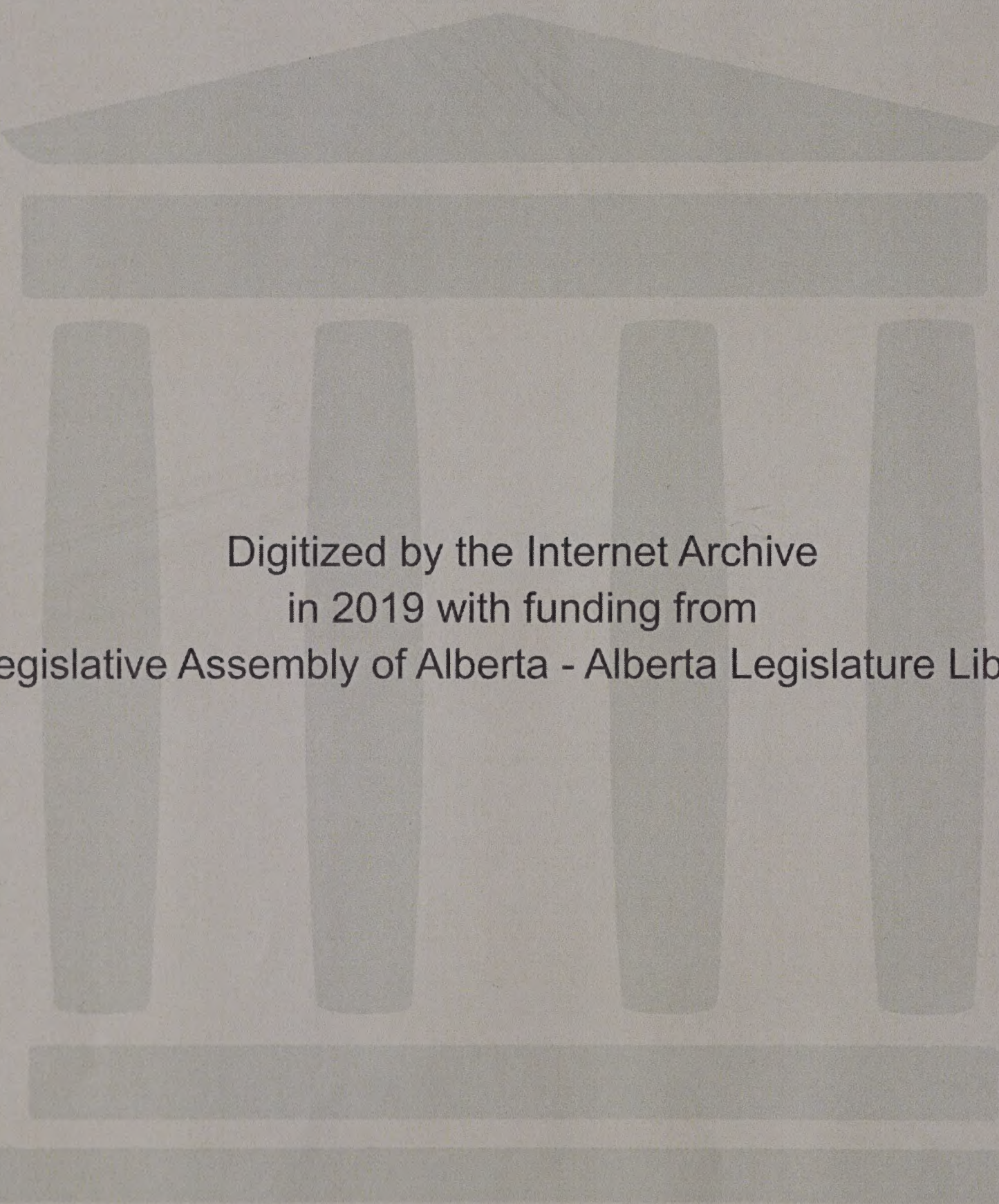
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PIGEON LAKE SURVEY REPORT

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PIGEON LAKE SURVEY REPORT

Preface

The survey of Pigeon Lake was undertaken for the purpose of obtaining information on existing land use, road facilities, topographical conditions, vegetation and beach materials. Knowledge of these factors is basic to understanding the existing situation and to the preparing of plans for future development.

A further purpose of the survey is to furnish a general indication of the types of problems involved and the nature of the information required in conducting similar surveys at other lakes, in order to establish a basis for determining suitable locations for public parks as well as for other types of lakeshore land uses.

A field survey was conducted during the summer of 1958 by the staff of the Town and Rural Planning Branch with the assistance of the Provincial Parks Board. The entire lakeshore was surveyed and information recorded on maps. Aerial photographs were used in checking and determining the actual locations of the land use and geographical data recorded on the maps.

The Pigeon Lake Survey Report has been prepared in two parts, one dealing with problems connected with lakeshore development in general and their possible solutions, the other with the geographical features, existing land use and proposed future development of the area which surrounds Pigeon Lake.

PIGEON LAKE SURVEY REPORT

PART 1: LAKESHORE DEVELOPMENT - PROBLEMS AND PROPOSALSIntroduction:

The increase in leisure time because of a shorter work week for the urban worker, plus the improvement in road facilities is creating a growing demand in this Province for summer cottage subdivisions, picnic sites, parks and lakeside resorts. This type of development, to be adequate, must take into account both private and public interests.

The amount of lakeshore frontage lands being occupied by private summer cottage developments is increasing each year, particularly on those lakes which are easily accessible from the larger urban centres. As a result of this trend, many of the choicer sites are being taken up which might otherwise be best suited for public park development.

Other problems have arisen as a result of lakeshore development in connection with public parks, private subdivision, summer villages, lakeshore roads and access roads. These are discussed in Part 1 of the Pigeon Lake Survey Report. A number of principles are suggested as a possible guide to the future development of lakeshore areas. In this way, it is hoped to provide a basis for the establishment of a lakeshore policy which will have general application.

1. MAJOR PARKS:

Because of the ever increasing public requirements for outdoor recreational facilities under the stimulation of higher incomes, more leisure time and improved transportation, serious consideration should be given to the problem of providing parks for the use of the public, particularly in the vicinity of populated urban districts.

In order to ensure that sites of recreational value on public lands are preserved to meet this need, it is suggested that private subdivision of lakeshore areas be considered as secondary to the primary purpose of locating and providing parks for the enjoyment of the public. All crown owned lands with lake frontage should be held in reserve until such time as a determination is made of their suitability for public recreational use and of the park requirements of the particular lake in question. Only those public lands which, upon inspection, prove to have very secondary value for public recreational purposes should be made available for private occupancy.

On lakes where little crown land is available or where public park development is very limited, surveys should be undertaken to determine the location and extent of any areas of recreational value which might exist. Steps should then be taken to acquire the suitable park sites which would be required for present and future development.

Present park blocks in many existing lakeshore subdivisions, while they do provide access to the water, are too small and scattered to be of any practical value as parks. A small number of large park blocks around a lake would be more useable, easier to maintain and police than a large number of small scattered areas.

11/11/11

Dear Mr. [Name],

I am writing to you regarding the [Topic] that we discussed previously. I have received your letter of the [Date] and I am sorry that I have not responded sooner. I have been very busy with [Reasons] but I am now able to address your concerns.

[Detailed paragraph of text, mostly illegible]

I am sorry that I cannot provide a more definitive answer at this time, but I will do my best to resolve the situation as quickly as possible. I will contact you again once a final decision has been reached.

Thank you for your patience and understanding.

Sincerely,
[Signature]

Major public parks should be so distributed geographically as to serve the populated areas adequately and with a minimum of required travel time. A site for such a park should be of adequate size to permit it being developed for use by large numbers of people and the enjoyment of a wide variety of recreation resources without conflict, or without destroying the general effect of a natural environment. It should attract enough visitors to justify the establishment of adequate supervision and maintenance.

To establish a set of mathematical standards for the determination of the amount of public park space required and have it apply to all lakes would be difficult of attainment. Each lake, with its own particular geographical conditions, stage of development, ease of access and location in relation to populated districts, will have to be approached on an individual basis. Nevertheless, it is possible to develop a broad overall policy which, because of its flexibility, would have general application to all lakes.

Large lakeshore park blocks should be provided for the use and enjoyment of the public. Such blocks, at least a quarter section in size, would be situated at intervals around the shoreline of those lakes which are accessible and suitable for public recreational use. These park areas should be provided with access roads, parking facilities, play areas, picnic tables, fireplaces, etc. If this is not done, they will not be fully used and may, in addition, become points of nuisance, eyesore and fire hazard. Their number and location would depend upon the extent to which the particular lake is used at present, expected to be used in the future, and the availability of lakeshore lands for park purposes.

2. SETTLEMENTS:

(1) Subdivisions - The rapid growth of summer cottage development in this Province has been characterized by a tendency on many lakes for such subdivisions to occupy almost continuous sections of shore frontage. Typically, these subdivisions, only one row of lots in depth, are strung out in almost unbroken bands along the shoreline of a lake. Under these circumstances, roads originally designed to provide access to each subdivision tend to become, as adjacent subdivisions are developed, main traffic thoroughfares. Problems have also arisen in developments of this type where the closing of street and park areas has reduced public access points to the lake frontage.

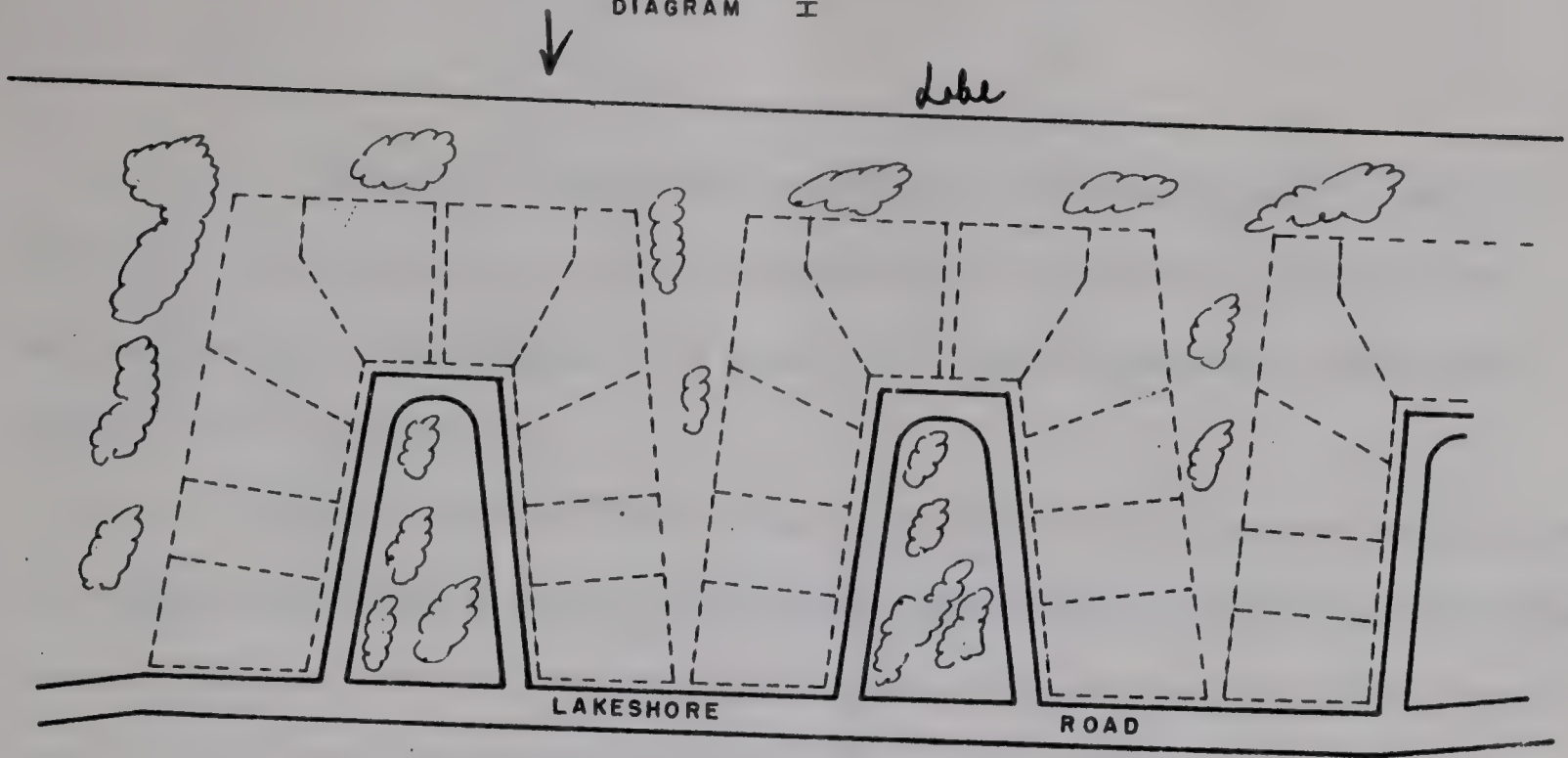
Private cottage subdivisions should be grouped in parcels or blocks extending back from the shoreline and located at intervals along the lakeshore. These subdivided parcels should be separated from one another by blocks of land designated for public parks, commercial recreation or organizational recreation uses. The locating of main lakeshore roads well back from the water will increase the privacy of existing subdivisions and encourage development back from the shoreline.

Where topography permits development in depth, it is suggested that lots be laid out in the form of U-shaped blocks which surround and are separated by park reserves with walkways located so as to provide pedestrian access across the block to such reserves (see Diagram I). Other recommended designs involve the use of loop roads and cul-de-sacs leading into the subdivisions from a main lakeshore road, as shown in Diagrams II and III.

In cases where topographical conditions permit only a single row of lots fronting on the water, it is proposed that park reserves be separated from each other by not more than 20 intervening lots.

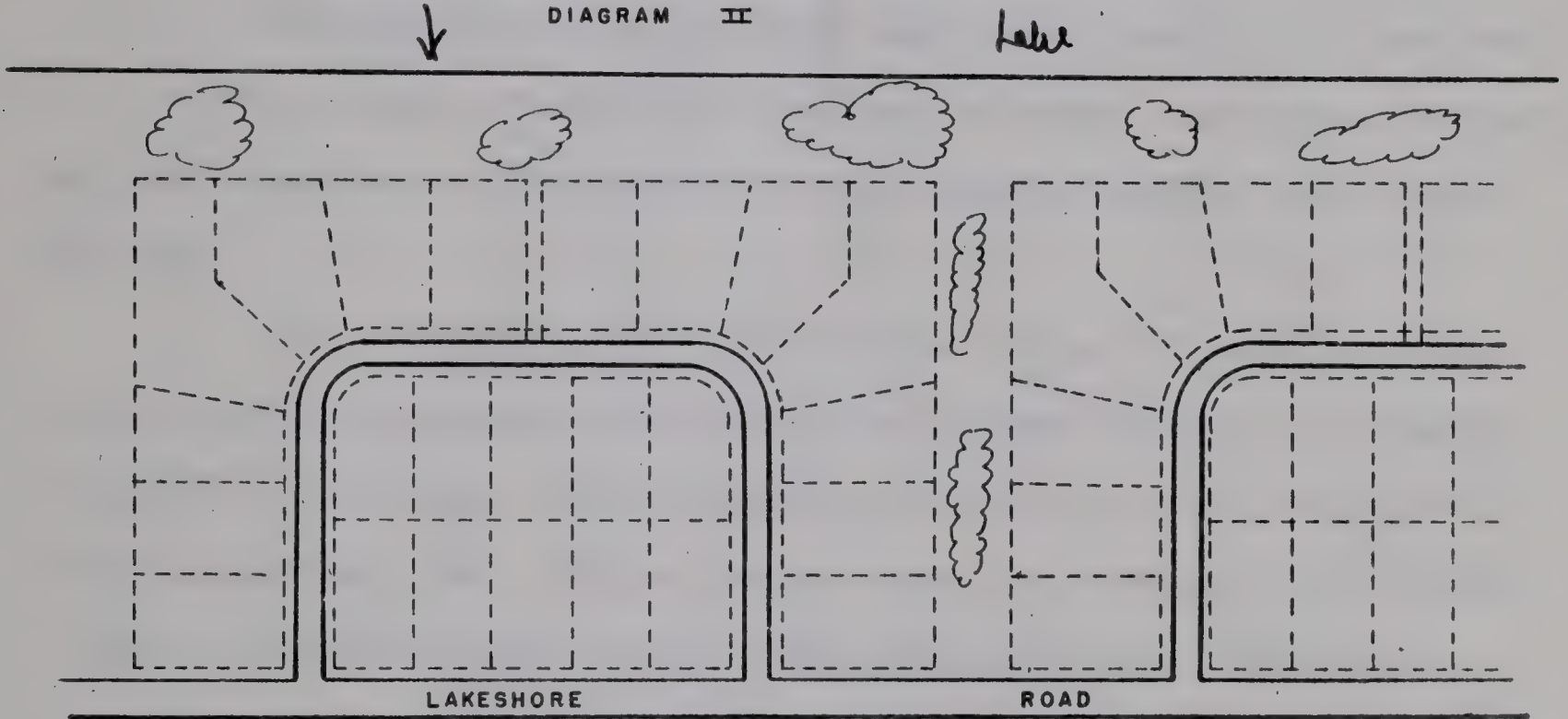
U - SHAPED SUBDIVISION DESIGN

DIAGRAM I



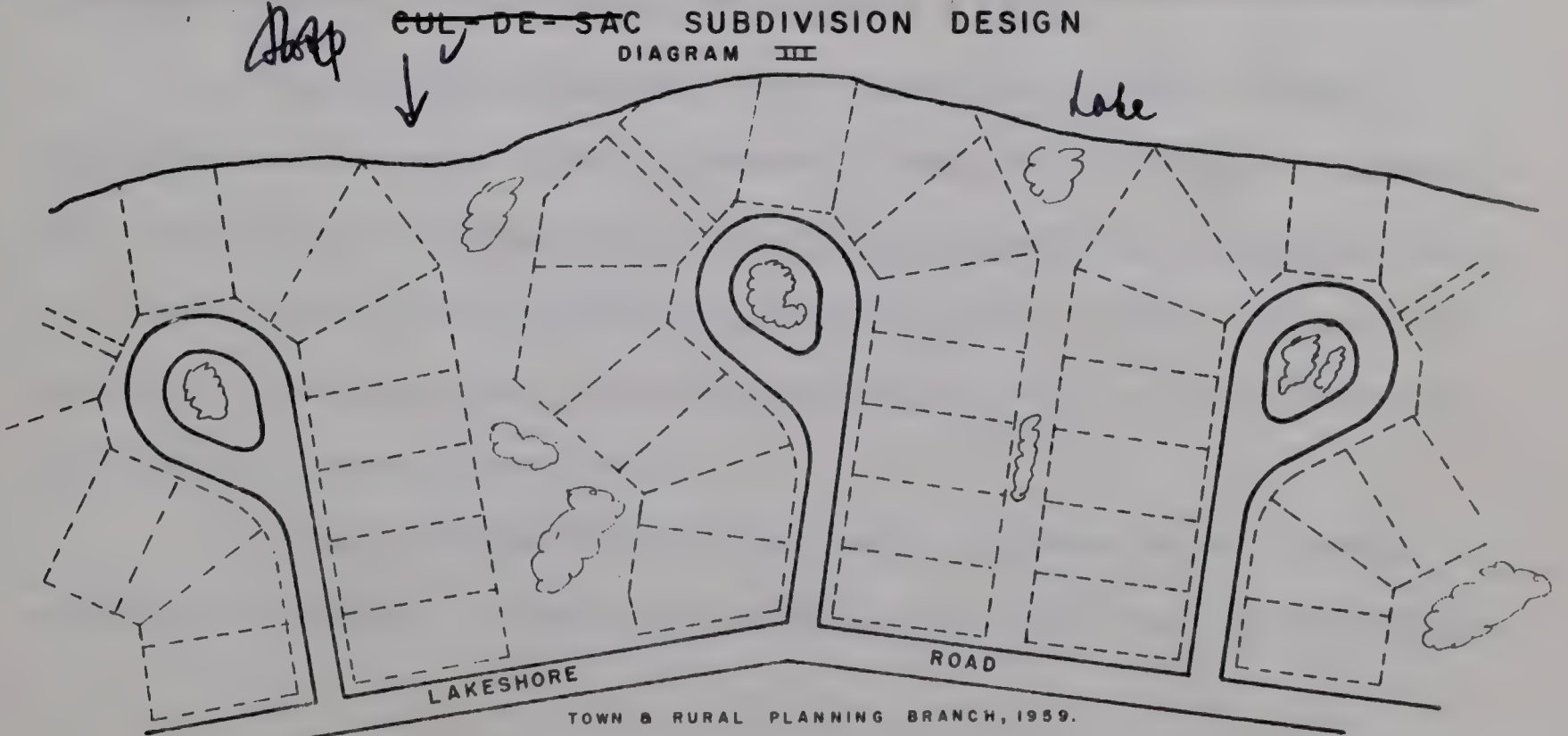
LOOP ROAD SUBDIVISION DESIGN

DIAGRAM II



CUL-DE-SAC SUBDIVISION DESIGN

DIAGRAM III



A site for a lakeshore subdivision should have good natural drainage. Low-lying land that is swampy or has a high-lying water table is not suitable for this purpose. A site that slopes moderately towards the lake is most desirable.

Small or narrow lots reduce the privacy of lakeshore subdivisions and destroy the natural beauty and rustic atmosphere of the surrounding landscape. The fact that many such subdivisions are not served by public sewer makes larger lots necessary from a health point of view.

Residential lots in lakeshore subdivisions should be 60 feet wide as an absolute minimum. To permit ample sideyard access, light, air, privacy and fire hazard safety, lots wider than the suggested minimum should be encouraged.

(2) Summer Villages - The Town and Village Act makes provision for the Minister of Municipal Affairs to form a summer resort into a summer village upon receiving a petition signed by ten persons who, if the summer resort were formed into a village, would be upon the assessment roll thereof. A number of lakeshore summer cottage developments have taken advantage of this legislation to form themselves into summer villages.

Certain planning problems have arisen where summer villages included within District Planning Commission areas are not commission members. While District Planning Commissions have planning powers in surrounding areas, they have no control over developments which take place within such municipal boundaries. In these cases, subdivision plans are processed and approved by the Provincial Planning authority.

To keep District Planning Commissions informed of developments within summer villages, it might be desirable for the Town and Rural Planning

Branch to refer approved copies of final plans to the Commissions for their files. On the other hand, it would be preferable if summer village plans were processed and approved by the District Planning Commissions concerned. The cost of performing this service would be covered by special grants to the Commissions. A third alternative is that of encouraging summer villages to become members of the commissions at nominal cost and with limited voting powers.

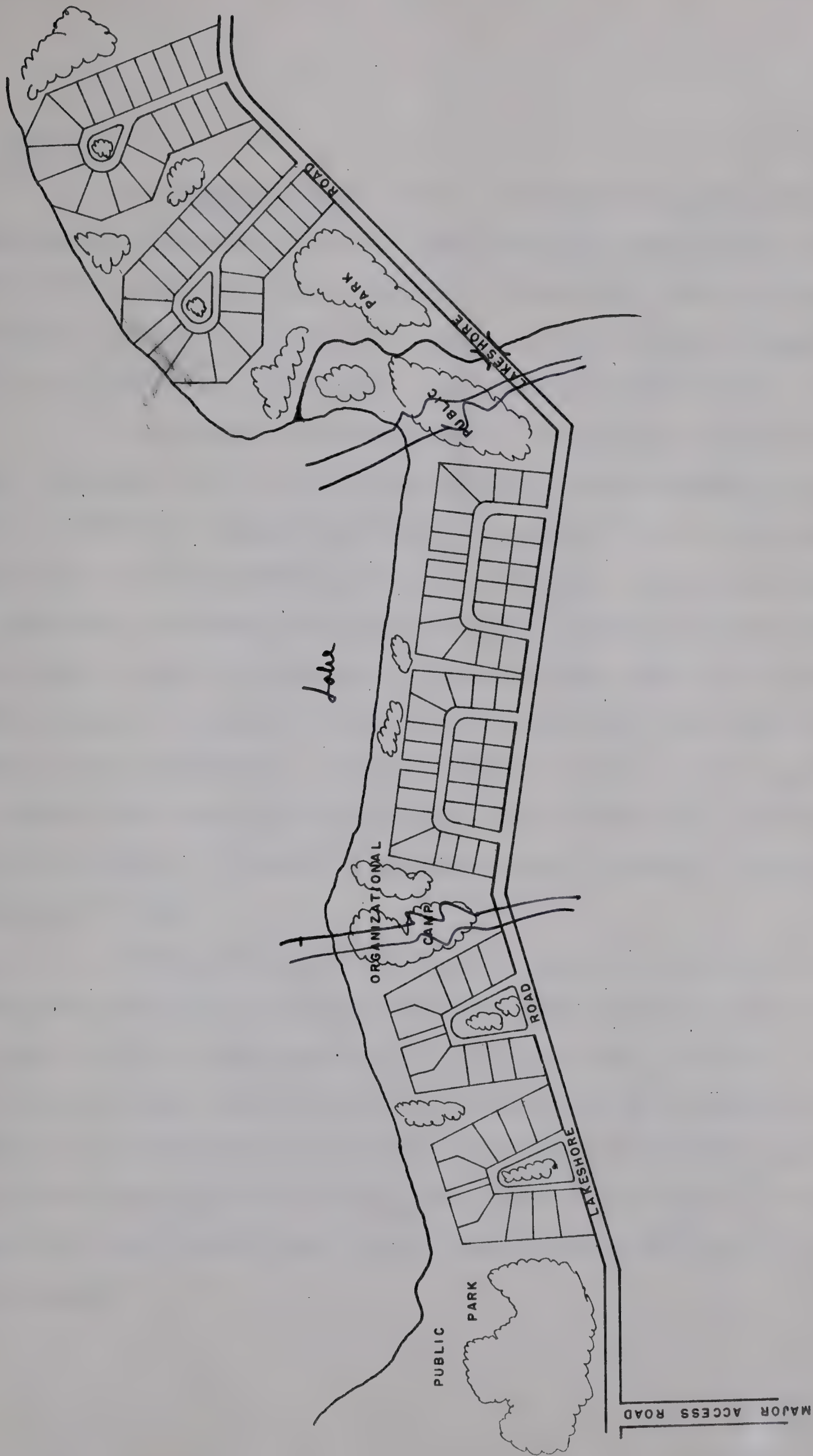
Problems associated with new lakeshore subdivisions have arisen when these areas form summer villages soon after their construction, making it impossible for local authorities to recover the cost of the roads which they have built. Most of the residents of these summer villages come from the larger urban centres which lie beyond the boundaries of the local authority.

To relieve the local authorities of the financial losses incurred in constructing roads in subdivisions which subsequently become summer villages, it is recommended that:

(a) roads in lakeshore subdivisions be provided by the developer,
or

(b) new lakeshore subdivisions be obliged to undergo a waiting period before forming into summer villages in order to allow sufficient time for the local authorities to recover at least part of the cost of the roads.

Forms of DESIGN FOR LAKESHORE LAND USE
 DIAGRAM IV



3. ROADS:

(1) Lakeshore Roads - In many developed areas lakeshore roads have been constructed so close to the lake as to allow space for only one tier of lots between them and the shoreline. These roads, built originally to provide access to a subdivision or a small park, have tended to become, as the land around the lake developed, main lakeshore traffic routes.

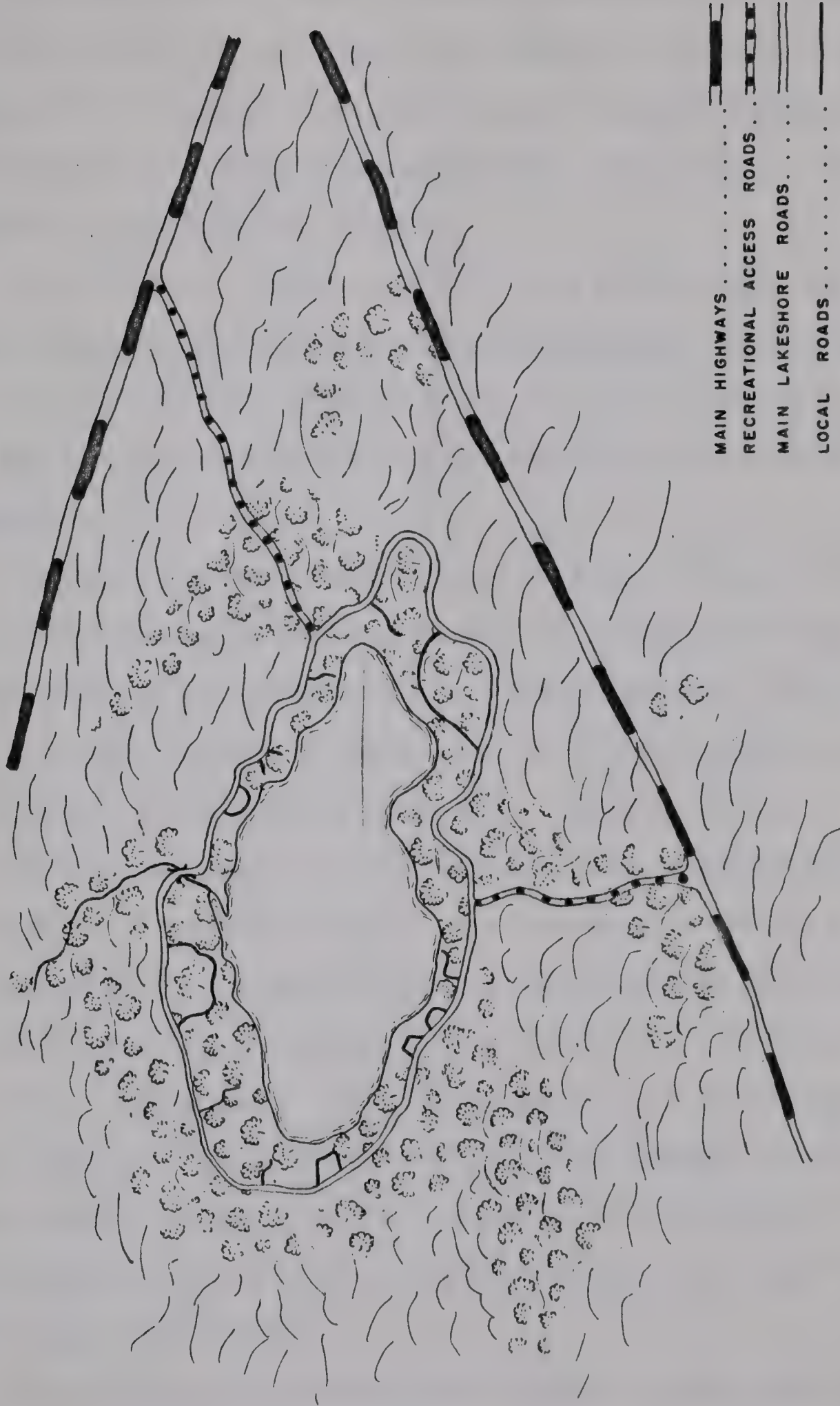
In planning for the development of lands adjacent to lakes an ideal arrangement would be that of having blocks of land designated for such uses as subdivision, organizational camps and commercial recreational sites divided at intervals by public parks along a lakeshore. All of these would be joined by a main traffic road situated at such a distance from the lake as to provide space for development in depth, to reduce noise and the traffic hazard of having to cross the road to reach the lake, yet close enough to provide ready accessibility. A minimum distance from the lakeshore should be specified and adhered to, except in cases where topographical conditions make it unfeasible. A distance of 400 feet or more, for example, would permit development in depth.

In the early stages of development only small sections of the lakeshore traffic road would be required from which minor roads would lead providing access to parks, subdivisions or other land uses along a lakeshore. Then, in succeeding stages, extensions or additional sections of the lakeshore traffic road would be provided to intercept minor roads leading to the lake resulting from further development. In this way, the danger of minor access road developing into a major traffic route around a lake is greatly reduced at all stages of development.

(2) Access Roads - The rising popularity of recreational areas in this province and the increasing necessity for providing access roads designed to handle efficiently the growing traffic volumes, raises the question of the adequacy of the present road classification system where recreational access roads are concerned.

ROAD CLASSIFICATION

DIAGRAM V



TOWN & RURAL PLANNING BRANCH, 1959.

In the Province of Alberta roads have been classified largely according to their degree of use. Thus, main highways are defined in the Public Highways Act as highways which form the main channels of communication throughout the Province; and are connected with the main travelled roads situated outside and adjoining the Province.

These highways, intended for use by all people within the Province, are considered to be a provincial responsibility. The principle that roads should be paid for by the people who use them is applied in this case, since the Provincial Government pays the entire cost of construction and maintenance.

Secondary highways, while they are used extensively by people on a local and district level, also involve traffic movements over much larger areas. They are the feeder routes to the main highways. In the case of secondary highways, the cost of construction is shared, six-tenths being paid by the Province and four-tenths by the local authority concerned.

District highways and local roads are those used primarily by the local residents of a particular area. The Provincial Government may contribute towards the cost of maintenance and construction of such roads but they are, on the whole, the responsibility of the local authorities.

Thus, each class of road is characterized by a varying degree or provincial interest. The measurement of provincial interest has been based largely upon the recognition of the obligation of the Province to facilitate the travel of those of its residents who wish to go beyond the boundaries of their local areas.

While main highways provide direct access to some lakes and park areas, others are dependent upon secondary highways or even district highways and local roads. In those cases where access to a recreational

PIGEON LAKE SURVEY REPORT

Alternative suggestion for the final paragraph on Page 11:

In view of the above considerations, it is recommended that the possibility of establishing a special class of roadway, giving access to recreational areas, be investigated. Certain roads, used extensively by lake or park-bound traffic, might be designated as recreational access roads. ~~See~~ Whether their maintenance would be a responsibility of the provincial government or the municipalities concerned would also have to be considered.

area is provided by a road other than a main highway, the road is invariably used to a much greater extent by people from outside the area than by the local residents. If the road is classified as a district highway or a local road the cost of maintenance and any construction which may be required is the responsibility of the local authority. Thus, the local residents are paying for the upkeep of a road which is primarily for the benefit of people from outside the area altogether.

In the case of Pigeon Lake, Highway 19 provides an access route to Ma-Me-O Beach and the southern part of the lake. In recent years, however, a considerable amount of development has been taking place on the north side of the lake in the area between Mulhurst and Mission Beach. People have been travelling to this part of the lake in increasing numbers over Highway 39 and south through Thorsby. This road, formerly used mainly by local residents, is rapidly becoming a major access route for people coming from outside of the area.

In view of the above considerations, it is recommended that the possibility of establishing a special class of ^{roadway} highway, giving access to recreational areas, be investigated. Certain roads, used extensively by lake- or park-bound traffic, ^{might} ~~would~~ be designated as recreational access roads. ~~Maintenance would be the responsibility of the Provincial Government. The~~
~~costs of improvements on such roads involving new construction might be~~
~~shared on the basis of an agreement between~~
~~divided between the Province and the local authority concerned, with the~~
~~Province assuming a larger share than that presently stipulated for secondary~~
~~highways because of the special nature of these recreational roads.~~

PART II: PIGEON LAKE SURVEY

INTRODUCTION:

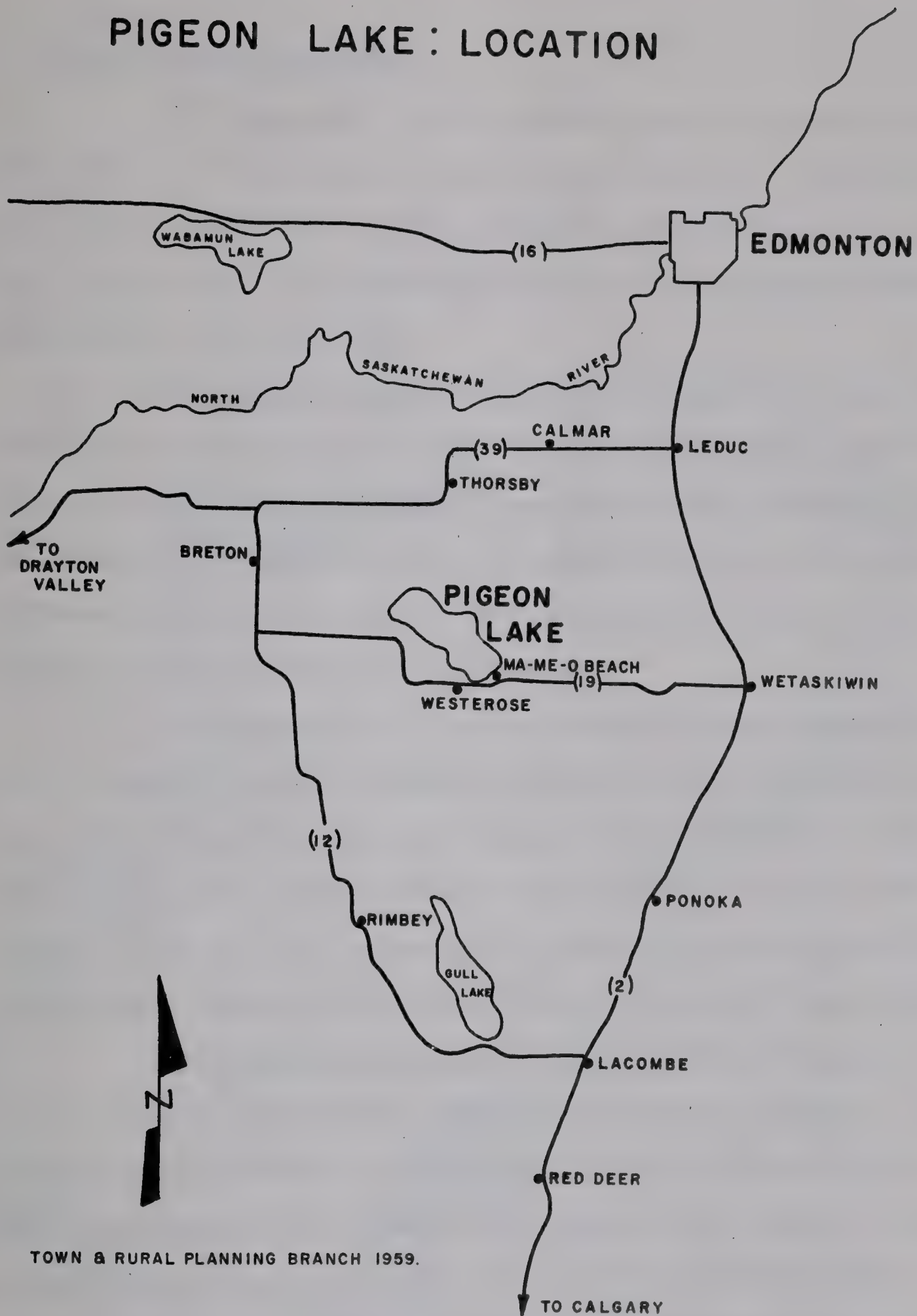
Pigeon Lake is situated about 68 miles south-west of Edmonton and 28 miles west of the City of Wetaskiwin on Highway 19. It is one of the largest and most popular lakes for people living in the Edmonton area as well as for those in the smaller communities which lie close by.

The lands which lie adjacent to the west and north-west sides of the lake are included within the Municipal District of Leduc, while those areas which extend along most of the east and south shores form part of the County of Wetaskiwin.

Part II of the Pigeon Lake Survey Report provides data on the geographical features and present physical development of those land areas which lie from one-half to three-quarters of a mile from the lakeshore. On the basis of this information, an attempt is made to determine the suitability of the major areas of undeveloped land around the lake for various types of development.

There are a number of undeveloped areas along the lake varying in size from very small stretches of shoreline to fairly extensive blocks. An assessment of the larger of these areas as to their relative suitability for various types of development is made in the "Analysis Areas" section of this report. They are designated as Areas "A," "B," "C," and "D," and are shown on the Analysis Areas Map.

PIGEON LAKE: LOCATION



TOWN & RURAL PLANNING BRANCH 1959.

1. SURVEY OF ENTIRE LAKESHORE:

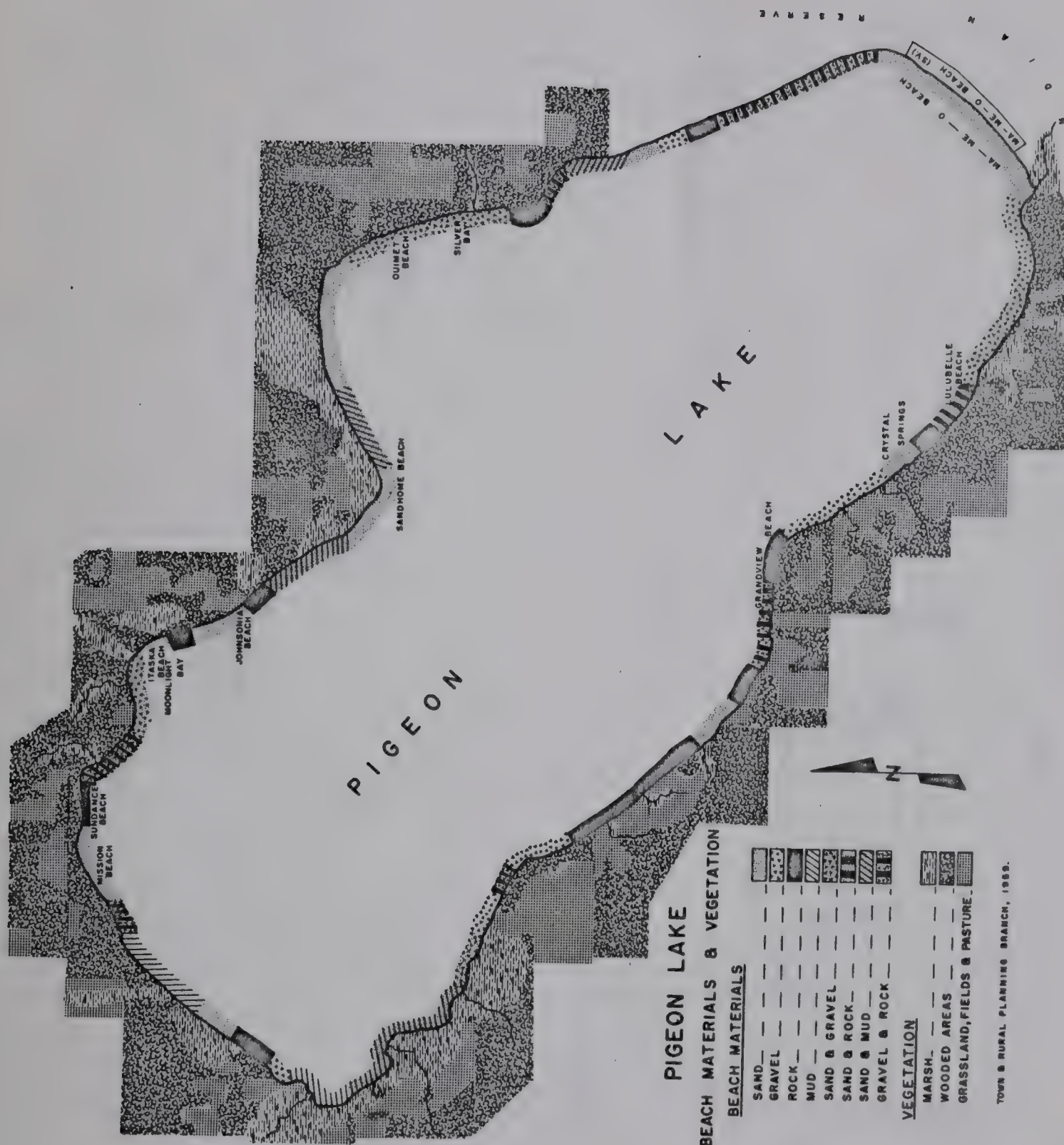
(1) Topography - The land around much of the lake is rolling in nature with a gentle to moderate slope towards the water. Low-lying level marshland areas occupy the western and north-central portions of the lake-shore, while rough, hilly topography dominates in a few isolated locations, particularly in the north-west.

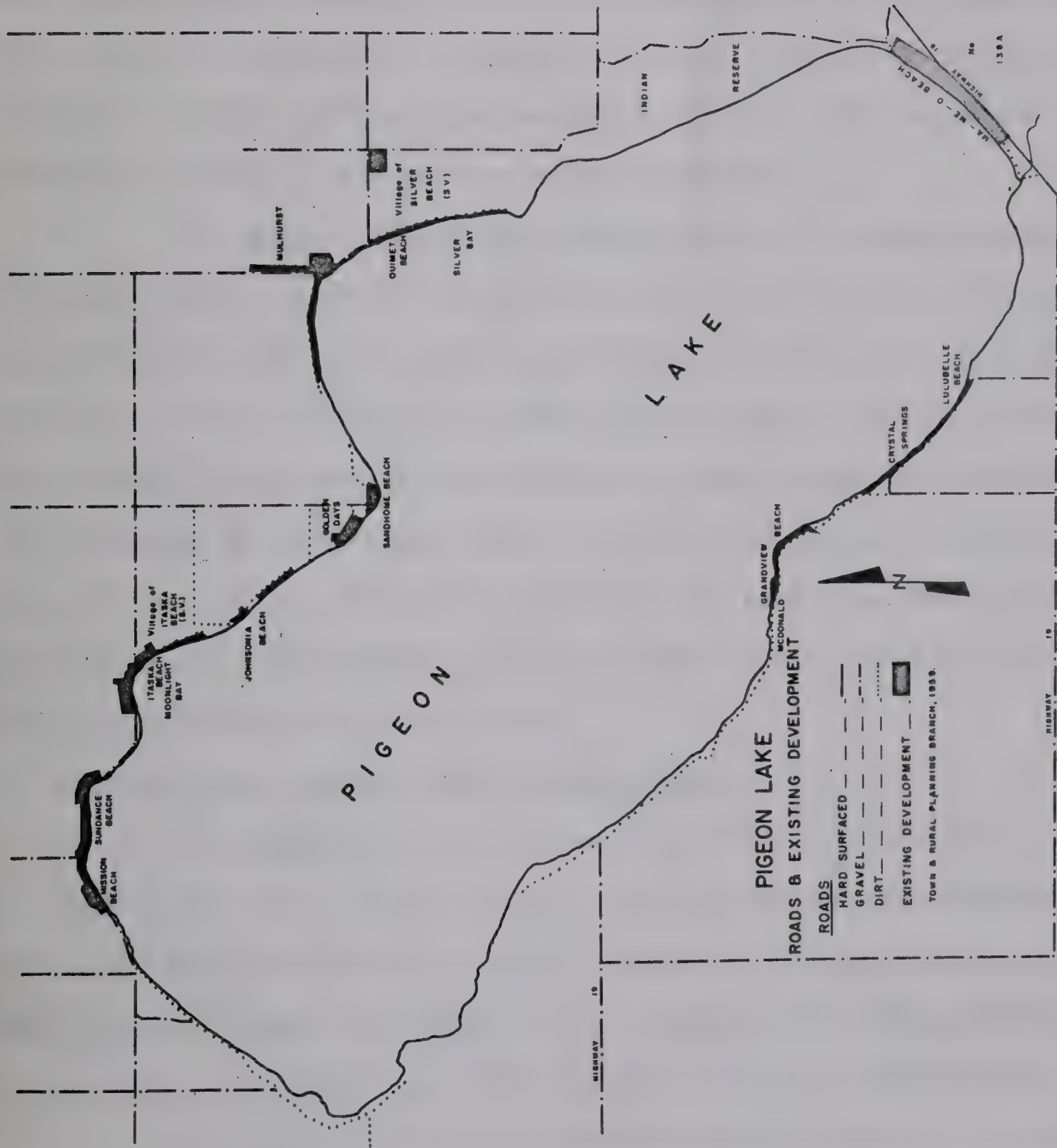
(2) Beach Materials - Pigeon Lake has extensive sandy beaches, although the sand is overlain in some areas by coarse gravel, rock and mud. The largest sand beaches are found in the Ma-Me-O Beach and Mulhurst areas. Rock and gravel beaches occur along the south shore of the lake and at scattered locations in the north. Much of the western side of the lake is muddy and swampy adjacent to the water's edge.

(3) Vegetation - A light to medium deciduous forest cover, which is composed largely of poplar, extends along the southern part of the lake. The northern shore is more densely wooded with deciduous forest interspersed with spruce. Fairly extensive clearings occur in both areas. The western side of the lake is surrounded by low-lying flat land, which is largely grass, covered with scattered patches of bush and forest growth.

(4) Existing Development - Lakeshore summer villages are located at Ma-Me-O Beach, Silver Beach, Itaska Beach and Crystal Springs. Extensive summer cottage development has also taken place in the Mission Beach, Sundance Beach, Sandhome Beach and Mulhurst areas along the north side of the lake, and in the Grandview Beach and Lulubelle Beach areas on the south shore. Commercial facilities are available at Ma-Me-O Beach and Mulhurst while single stores are located at Crystal Springs, Mission Beach and on the west side of the lake.

Fairly extensive clearings occur on both the north and south sides of the lake for agricultural purposes. A number of organizational camps belonging to church groups, Boy Scouts, Girl Guides, etc., are located at





various points along the shore. However, the major development around the lake consists of privately owned beach cottages. An Indian Reserve occupies a large part of the eastern shore.

Public recreational development is very limited at present, being confined largely to a number of small parks within the existing subdivisions which serve the main purpose of providing public access to the lakeshore. There is a park operated by the Municipal District of Leduc on the west side of the lake, while a narrow shoreline park strip and a small provincial park fronting on Highway 19 are situated at Ma-Me-O Beach.

(5) Roads - Highway 19 provides a good, all-weather approach to the summer village of Ma-Me-O Beach and the southeastern shore of the lake. Most of the remainder of the lake can be reached from the outside by fairly good gravel roads, which follow a broad gridiron pattern running in north-south and east-west directions. A lakeshore drive extends around a large part of the lake, although extensive breaks occur on the west shore and at scattered points along the south and north sides of the lake. The road along the south shore is mainly dirt with some stretches of light gravel surface, while on the north side of the lake the road is largely gravel.

2. SURVEY OF AREAS SELECTED FOR DETAILED ANALYSIS:

(1) Area "A" - This area, which includes most of Section 6 (Tp. 47, R.1, W.5) on the south side of the lake, contains the only sizeable block of undeveloped crown land along the entire lakeshore. The southwest quarter section, which logically forms part of the area, is privately owned land, while a portion of the crown owned shoreline has been leased to religious organizations.

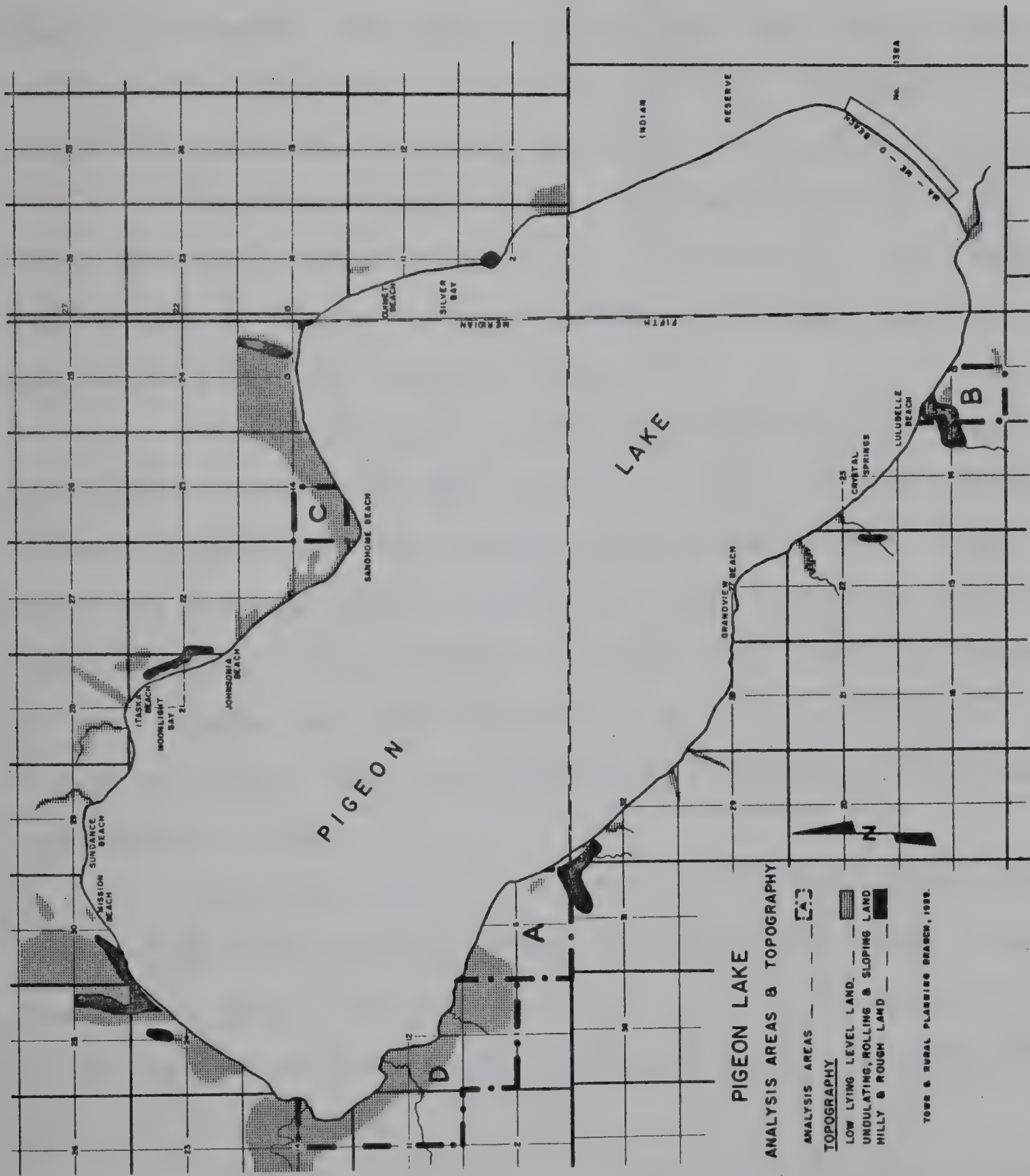
The western half of the north-west quarter section is a low-lying level area of swamp vegetation, scattered bush and light poplar growth. The ground is spongy underfoot and inclined to be marshy. The land is level for

It is a common mistake to think that the only way to improve the quality of our work is to work longer hours. In fact, the most effective way to improve the quality of our work is to take care of ourselves. This means getting enough sleep, eating healthy food, and exercising regularly.

When we are well-rested and healthy, we are able to think more clearly and make better decisions. We are also able to handle stress more effectively and maintain a positive attitude. On the other hand, when we are tired and stressed, our ability to think clearly is impaired, and we are more likely to make mistakes. Therefore, taking care of ourselves is not just a luxury, it is a necessity for anyone who wants to be successful in their work.

One of the best ways to take care of ourselves is to get enough sleep. Most people need between seven and eight hours of sleep each night. If we don't get enough sleep, our body and mind will be exhausted, and we will be unable to perform at our best. To get enough sleep, we should go to bed at a regular time each night and avoid using electronic devices before bed. We should also create a comfortable sleeping environment by keeping the room dark and cool.

Another important way to take care of ourselves is to eat healthy food. A healthy diet provides us with the energy and nutrients we need to perform our work. We should eat a variety of fruits, vegetables, whole grains, and lean proteins. We should also avoid eating too much sugar and fat, as these can lead to weight gain and other health problems. Finally, we should exercise regularly. Exercise helps to reduce stress, improve mood, and increase energy. It also helps to improve our overall health and well-being.



about half a mile back from the lake, where it rises gradually to the south. This is a burned over area, with dead and charred tree stumps scattered amongst the swamp grass.

The central part of the section is a burned over area of grass, bush and fern growth. The topography varies from almost level to gently rolling, with an easy slope to the edge of the lake. The land rises gradually to the southwest, then levels out about a mile back from the lake.

The southeast quarter section is a burned over area of low bushes, ferns, grass and scattered trees. It is a fairly open area with a gentle uniform slope up from the road to the southwest. The land becomes more rolling and hilly in nature towards the southeast.

The shoreline of Area "A" is composed of a mixture of sand and gravel in the western part, and of gravel and rock in the central portion. However, in many cases, these materials are underlain by sand. Further south, the shoreline strip is covered, apart from the clearing around the church camps, by a fairly dense growth of small poplar trees and underbrush. The land is quite level, with a gentle slope to the lake. The beach in this section has mainly a stone and gravel surface, interspersed at intervals with small patches of sand.

Area "A" is located in one of the more remote sections of the lake, away from the areas of major population and present development. Access is provided by a gravel road which leads towards the lake from Highway 19. It is also possible to reach the area along the present lakeshore road, although this route is not as good.

While not an ideal park site, Area "A," nevertheless, could be developed as a suitable park for the enjoyment of the public. Due to the lack of this type of facility at other locations on the lake, the reservation of this area for future development as a provincial park is recommended.

(2) Area "B" - This area comprises the southwest quarter of Section 13 (Tp. 46, R.1, W.5) and that portion of the northwest quarter section which lies adjacent to the lakeshore. This land is under private ownership, although most of it is in undeveloped forest with the exception of the rough pastureland in the northern portion of the area.

A thin band of forest extends along most of the lake frontage. A creek cuts across the western part of the area, occupying a narrow ravine which widens out towards the lake. The land slopes steeply to the water's edge along most of the shoreline, although it tends to be more level a short distance back from the lake on the eastern side than it is on the west, making it suitable for subdivision.

The pasture land in the northern part of Area "B" is composed of fairly level land dotted with clumps of poplar trees. In the east, the land slopes to the west and north, making it suitable for development in depth in conjunction with the eastern part of the shoreline.

The beaches in the area are narrow and mainly of gravel and stones underlain by sand, although there are short stretches of sand as well.

From the point of view of access, the area has an excellent location. It is on the southern part of the lake near the Summer Village of Ma-Me-O Beach and close to Highway 19, which, although the paved portion ends at Westeros, would provide an all-weather route to within a few miles of the site.

The varied topography, attractive scenery and easy accessibility of Area "B" suggest its suitability for development either as a combined summer cottage-park area, or entirely as a public park.

(3) Area "C" - This area, which is privately owned, makes up the southwest quarter of Section 14 (Tp.47, R.1, W.5) on the north side of the lake near Sandhome Beach.

The land south of the road and extending to the water's edge is low-lying, level and marshy with a covering of grass and bush. North of the road is a slightly higher and less marshy, cleared grassland area which slopes to the southwest. The central part of the quarter section is level to gently undulating topographically, with light deciduous forest growth, bush and grassland. The northern part of the area is fairly level, with a covering of bush and light forest growth.

Access to the site is provided by a fairly good north-south gravel road which terminates at Sandhome Beach.

The beach in Area "C" is inclined to be muddy with fine sand as the underlying material. Bull rush growth parallels the shoreline for most of its length.

Area "C" is one of the few remaining blocks of undeveloped land on the north side of the lake. The lakeshore between Silver Bay and Mission Beach is almost all occupied by private summer cottages or subdivided strips of land which have not yet been built on.

The forest growth is light throughout the quarter section and little, if any, clearing would be necessary to develop the area. The fact that this is a very popular part of the lake makes the development of a reasonably sized park and picnic area for public use all the more desirable.

(4) Area "D" - This is an extensive area fronting on the west side of the lake and extending back for a distance varying from one-half to one mile from the shore. The land in this area may generally be described as low-lying level marsh land covered with grass, with scattered patches of bush and light tree growth. The land is quite damp and marshy near the shoreline and becomes

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less so inland where there is a very gradual rise away from the lake. Interspersed throughout the area are a number of small, isolated patches of slightly higher ground which are less swampy and marshy than the land near the lakeshore.

The beaches are, for the most part, swampy mud flats underlain in many cases with fine sand. A sandy beach with patches of gravel occurs in the eastern extremity of the area. Bull rush growth is characteristic of the water areas lying immediately adjacent to the shore.

Dirt roads lead into the northern part of the area at present but the lakeshore road dwindles into a grass covered trail to the south, leaving the southern half of the area practically inaccessible by motor vehicle. The area is largely undeveloped and remote from the more extensively used parts of the lake.

The land along the lakeshore is, generally speaking, not suitable for subdivision, although the higher land further back, which presents an impressive view of the lake, could be used for this purpose. The muskeg type soil which covers most of the area is not suited to the mixed farming practised on the north and south sides of the lake, although it offers possibilities as grazing land.

Although level marshland does not itself provide good quality parkland, it could in combination with other types of land in a larger area, form a part of the varied landscape considered desirable in a regional park. Thus, the possibility of adding all of this area or part of it to Area "A," which lies adjacent to it, should be investigated.

3. RECOMMENDED FUTURE DEVELOPMENT:

There are, at present, about 450,000 people living within an area which extends from Edmonton to Red Deer and is bounded on the east by Camrose and on the west by the Village of Breton. The number of large regional parks situated within this area is very limited at present and every year potential

parklands are lost to other types of uses. Even so, suitable sites for regional parks are still in existence. The continuing growth of the central Alberta region in the future will further intensify the need for regional park development. In view of the above considerations, it seems imperative that action be taken in the near future to ensure the provision of adequate large scale recreational facilities for present and future needs.

The location of Pigeon Lake in relation to the populated urban district of Edmonton and the well developed area which lies between Edmonton and Red Deer gives it a special significance in planning a program of public park development in the province.

(1) Land Use - Present land uses on Pigeon Lake occupy the following approximate proportions of the total lakeshore frontage:

Developed residential land	22%
Undeveloped subdivided land	7%
Agricultural land	3%
Organizational camps	5%
Privately owned undeveloped land	37%
Public park blocks and strips	9.3%
Undeveloped crown-owned land	3.7%
Indian Reserve	<u>13%</u>
	<u>100%</u>

The above percentages point up quite markedly the small proportion of lake frontage devoted to public park use, especially when it is considered that an important proportion of this amount consists of small, scattered park blocks in lakeshore subdivisions and narrow park strips along the waterfront, such as the one at Ma-Me-O Beach.

The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is well-posed and that the solution exists and is unique. The second part of the paper is devoted to the construction of the solution. It is shown that the solution can be constructed by the method of characteristics. The third part of the paper is devoted to the numerical solution of the problem. It is shown that the numerical solution can be constructed by the method of finite differences.

The fourth part of the paper is devoted to the stability of the numerical solution. It is shown that the numerical solution is stable. The fifth part of the paper is devoted to the convergence of the numerical solution. It is shown that the numerical solution converges to the exact solution. The sixth part of the paper is devoted to the error of the numerical solution. It is shown that the error of the numerical solution is of order $O(\Delta x)$.

The seventh part of the paper is devoted to the conclusion. It is shown that the numerical solution is stable and converges to the exact solution. The eighth part of the paper is devoted to the appendix. It contains the details of the numerical solution.

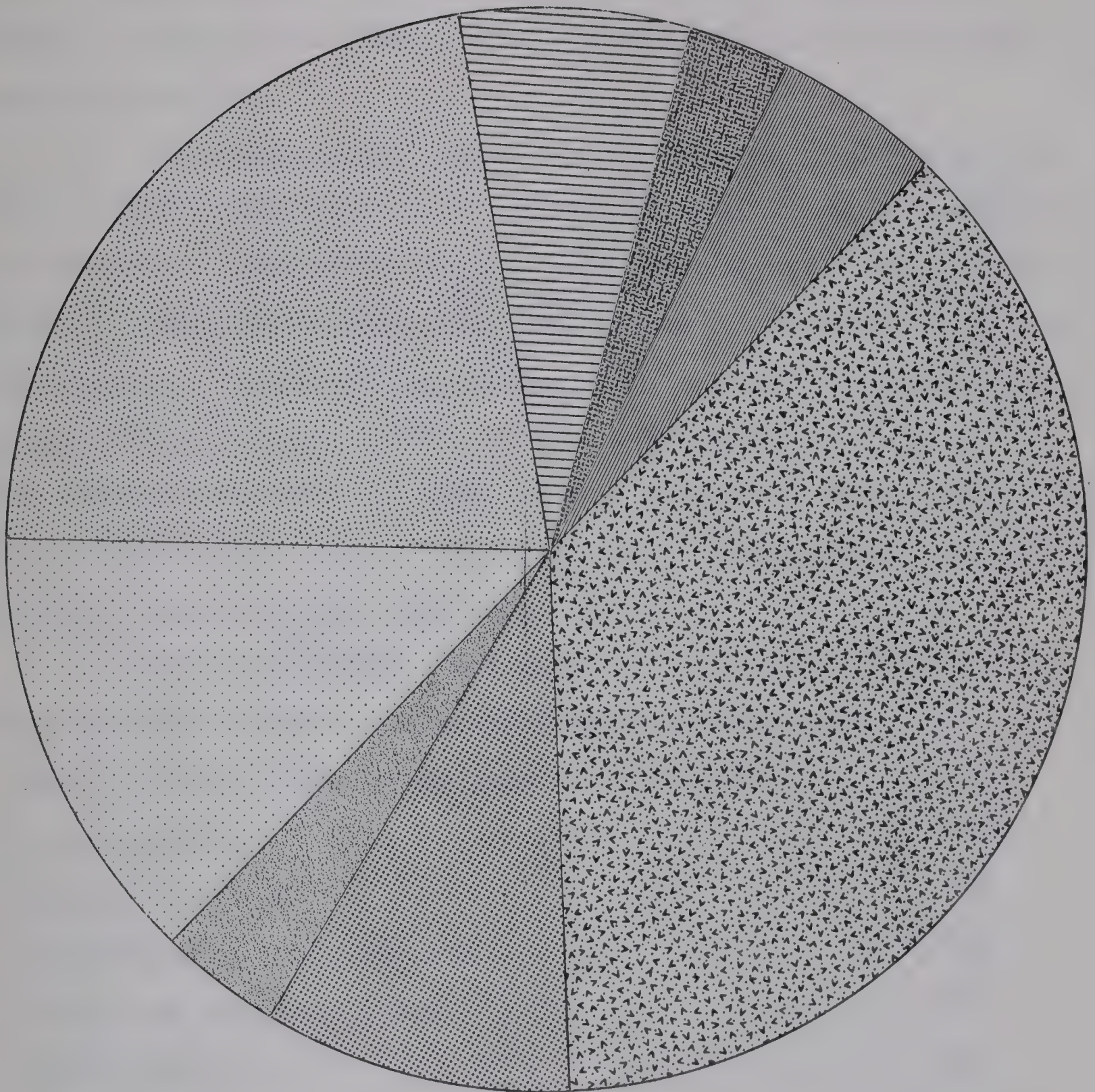
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
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


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LAND USE ON PIGEON LAKE

DIAGRAM VI



DEVELOPED RESIDENTIAL LAND	-----	
UNDEVELOPED SUBDIVIDED LAND	-----	
AGRICULTURAL LAND	-----	
ORGANIZATIONAL CAMPS	-----	

PRIVATELY OWNED UNDEVELOPED LAND	-----	
PUBLIC PARK BLOCKS AND STRIPS	-----	
UNDEVELOPED CROWN-OWNED LAND	-----	
INDIAN RESERVE	-----	

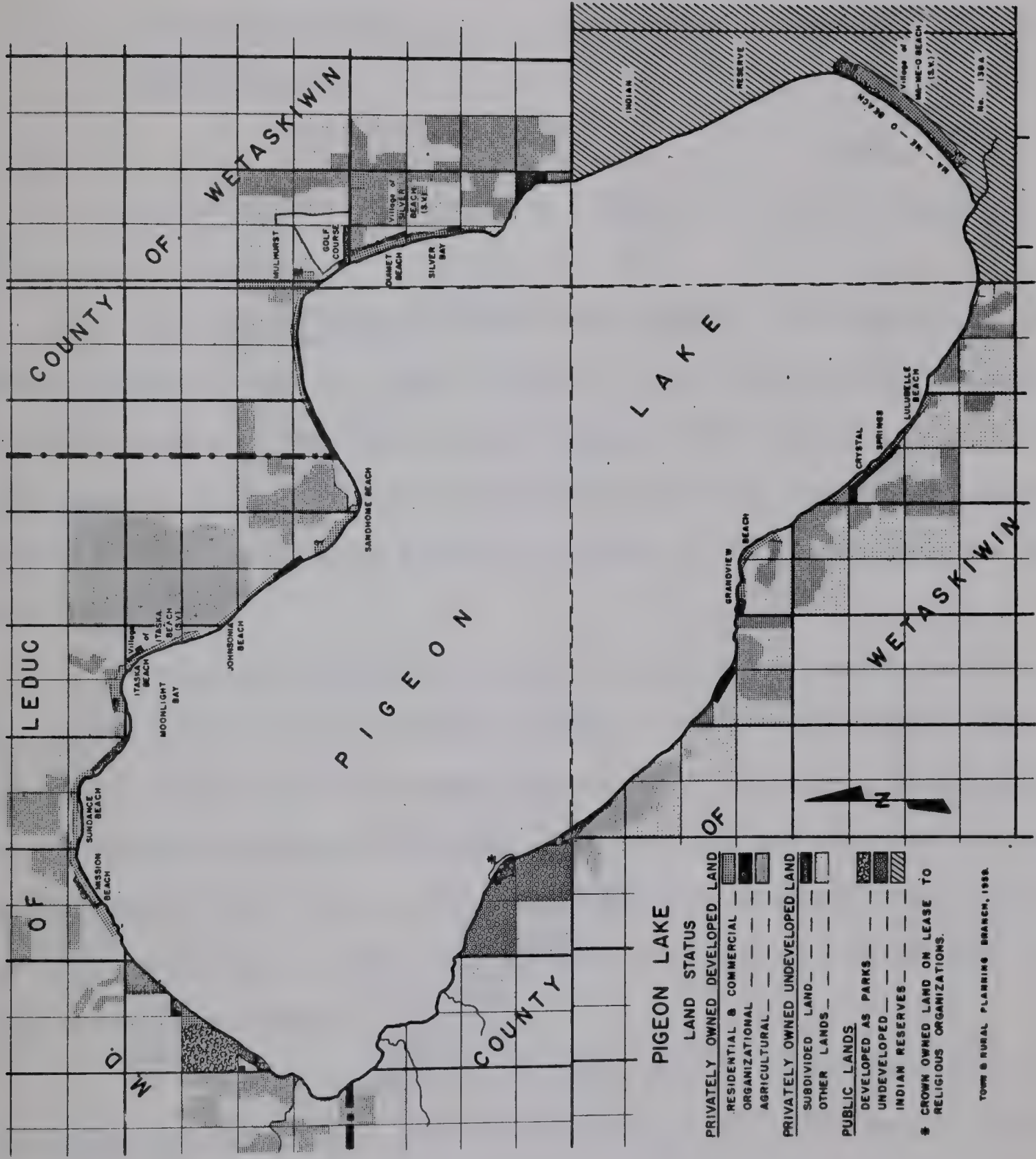
Privately owned undeveloped land with the addition of the small amount of undeveloped crown-owned land makes up about 40% of the existing frontage, indicating that there is still much land available for development along the lakeshore.

The adding of the lakeshore lands in Areas "A," "B," "C" and "D," which are largely undeveloped, to the public park total will alter considerably the proportions in some of the land use categories. It is also suggested that the strip of land, which in most cases lies between the lakeshore road and the water's edge, be considered as public park area at a number of locations around the lake. These areas are shown on the map of Future Land Use. Another site which offers possibilities as a small but well located park area is that section of lakeshore which lies south of the Summer Village of Silver Beach and north of the church camps on the east side of the lake.

The addition of the above areas to the public park category results in the following breakdown of lakeshore frontage percentages:-

Residential land (existing and undeveloped subdivided)	29%
Agricultural land	3%
Organizational camps	5%
Privately owned undeveloped land	15%
Public park blocks and strips	35%
Indian Reserve	<u>13%</u>
	<u>100%</u>

Most of the remaining undeveloped and agricultural lands in the above table would presumably eventually be divided between residential, organizational and possibly commercial recreational uses such as resorts, lodges, restaurants, etc.



If development were to follow the above pattern, lakeshore frontages occupied by the various land uses will probably be divided in the following proportions when the stage of full development is reached:-

Residential and Commercial	42%
Public park blocks and strips	35%
Organizational camps	10%
Indian Reserve	<u>13%</u>
	<u>100%</u>

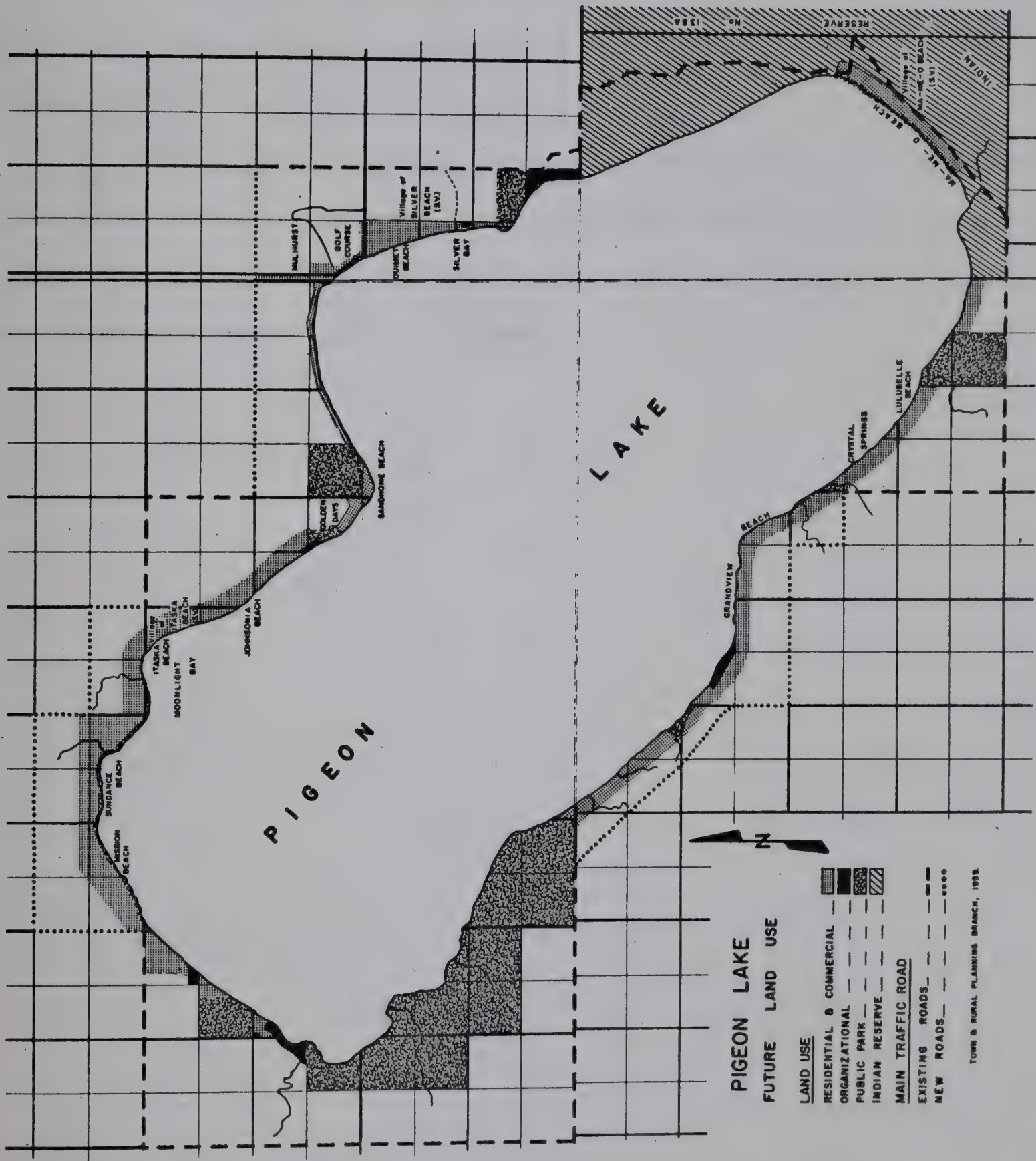
The location of these uses is indicated on the Future Land Use Map.

(2) Lakeshore Road - Further development of the Pigeon Lakeshore frontage lands will attract people to the area with a corresponding increase in traffic volumes on the access routes leading to the lake as well as on the local lakeshore roads. In order to meet this inevitable development, serious consideration will have to be given to the planning of an efficient road system around the lake.

The present lakeshore road is, for much of its length, located too close to the water's edge to provide an efficient main traffic artery around the lake. This is so because it prevents development in depth from the shoreline and makes it necessary for people situated on the landward side to cross the road to reach the lake. While this may not be considered as a major problem in the case of a minor local road, it would be a definite traffic hazard if the road were to become a main thoroughfare.

In planning the location of a main road around the lake the routes of suitably situated existing roads could be used. In areas where new sections

General Plan



of road may be needed such factors as topography, drainage and existing land uses will largely determine the route selected. Where feasible, section lines might be followed fairly closely in farming districts which extend back from the lake to avoid undue interference with existing development.

A tentative route for such a road is shown on the Future Land Use map. More intensive study and field survey work would naturally be required before any final route selection were made.

The present lakeshore road would be retained in those areas where it was required to provide local access to cottage subdivisions and organizational camps. In other areas, sections of it could be abandoned if they interfered with proposed future development.

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